pixels in the separate display layers. However, a similar principle can be invoked in a multi-layer display system in which the original colour values of overlaid pixels are combined in appropriate ratios to provide resultant RGB values for each resultant overlaid pixel. Alternatively, for example, the term "alpha blending" as used herein may refer to the manipulation of a visual property (such as to increase transparency) of pixels in non-active display elements in their respective display layers while the pixels in an overlapping active display element or elements in their display layer or layers are not altered at all.

[0133] There are several ways that alpha blending can be used to overcome the Text-on-Text problem in multi-layer display systems. For example:

[0134] 1. the entire desktop (that is all display elements on all display layers) could be faded or have their transparency increased except for a particular display element (such as a window) or elements which is/are in context, or

[0135] 2. only a particular display element (such as a window or windows) could have its transparency increased and everything else remains unaffected, or

[0136] 3. all objects on a particular display layer could have their transparency increased.

[0137] In these ways, more light is thus able to be emitted from or through an out of context (or non-selected or non-active) display element so that it has less effect on an overlapped in-context display element.

[0138] In any event, at least the overlapping portion of two overlapped display elements may be alpha blended to a desired degree in order to ensure that the user is best able to view the information from both layers. Because multi-layer display devices are designed to provide depth perception to a user, there individual display layers are spaced apart. As a result, depending upon the viewer's position in front of the display device, the amount of overlap will appear to change. In order to account for this viewing angle/position variability, the present invention may alter a slightly larger portion of one or both of two overlapped display elements.

[0139] It is also possible to allow a user to control the level of transparency provided by alpha blending the overlapped display elements. Alternatively, an optimum a value that minimises the Text-On-Text effect while still allowing the out of context text to be read may be predetermined and defined as the preferred transparency point. The user (or software in an automated process) could then either set the text to "transparent" (which would initiate alpha blending with the predetermined α value) or to opaque (no alpha blending) in order to simplify operations for a user. A user could also specify that every time a particular software application is opened its window is alpha blended to a preset degree, such as transparent for example.

[0140] Research has also been carried out on a metric that, given a particular background and a particular font colour, can predict the readability of the text. That is, means for determining a level of interference as experienced by a user between the first and second display elements. In particular, work has been carried out in developing a metric to predict the readability or legibility of transparent or translucent text. In a situation where text is laid over some graphic background in a multi-layer display system, a software application could analyse, using the metric, whether the contrast between the two images was such that the text was difficult to read. If this analysis determined that it was likely that the text was difficult to read then the program could automatically change the colour or transparency of the text (or the background, or both) to increase the contrast and make the text more readable.

[0141] It is therefore possible for the control system of the present invention to adjust the viewing properties (for example colour, brightness, transparency or contrast) of a particular display element in order to improve the user's viewing experience. This could be necessary, for example, if a display element is allocated for display on top of a further display element, but because of its current visual properties (such as if the Text-on-Text problem existed), a user would find it difficult or non-ideal to view the particular display element.

[0142] For example, as mentioned previously, a dark display element on a rear (further away from the viewing surface of the display device) display layer will reduce the amount of light available for illuminating an overlapping display element on a front (closer to the viewing surface) display layer. In this case, even if the display element on the front layer is active, it will be at least partly occluded or obscured. Accordingly, the present invention would automatically adjust a visual property (such as the transparency or colour or brightness) of the display element on the rear display layer, at least in the overlapping portion, so that the visibility of the active (front) display element is increased.

[0143] In contrast, if a display element on a rear display layer is active and there is a display element on a front display layer at least partially obscuring it, then a visual property (such as the transparency or colour or brightness) of the display element on the front layer may be automatically adjusted, so that the visibility of the active (rear) display element is increased.

[0144] In both examples, a similar or improved result may be achieved by adjusting the visual properties of the display elements on both the front and rear display layers. For example, if a display element in a rear display layer was coloured red and a foreground, overlapping display element was coloured green, then depending upon which display element was active, different proportions of the two colours could be combined and displayed on the front and/or back display layers, at least in the overlapping portion of the display elements.

[0145] That is, if the foreground (red) display element was active, the overlapping portion could be made to appear purple (that is the combination of moistly red and a little green) by either not colouring the overlapping portion at all in the rear display layer and colouring the overlapping portion purple in the front display layer or by adjusting the colours of both display elements in the overlapping portion in such a way that the combination appears purple. However, it is necessary to bear in mind that the colours rendered in the two separate layers can not be considered totally independently in their contribution to the resultant cumulative colour as detected by a viewer of the display—that is, the darker or less transparent the rear display element is, the less light that will be available to illuminate the front display layer and therefore the front display element's appearance is effected by the properties of the rear display element.